

AMSAT News Service Weekly Bulletins

Issue: ANS-240

Date: 2011-08-28

Sources: amsat-ans-2011-ans-240-weekly.txt

AMSAT NEWS SERVICE

ANS-240

ANS is a free, weekly, news and information service of AMSAT North America, The Radio Amateur Satellite Corporation. ANS reports on the activities of a worldwide group of Amateur Radio operators who share an active interest in designing, building, launching and communicating through analog and digital Amateur Radio satellites.

Please send any amateur satellite news or reports to:
ans-editor@amsat.org

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SB SAT @ AMSAT \$ANS-240.01

A0-51 Operations Update

AMSAT News Service Bulletin 240.01

>From AMSAT HQ SILVER SPRING, MD.

August 28, 2011

To All RADIO AMATEURS

BID: \$ANS-240.01

A0-51 Control Station, Mark Hammond, N8MH wrote a status update on this satellite. Mark noted that since the failure of the first cell on the six-cell battery the ground controllers have been limited to simple commands for basic configurations.

Mark said that ground control stations have evolved basic control and management techniques of A0-51 which allow them to set power levels manually, change uplinks/downlinks. Additional features such as telemetry collection/storage, and the BBS are not functional at this time. If the satellite resets during eclipse these basic functions must be restored manually by a ground station.

Ground stations have discovered there is a second cell in the battery showing problems. Mark noted, "We think it will be the next cell to go with the probable result that our limited manual mode of operation probably will no longer be an option, and the mission might be considered over."

A0-51 is currently transmitting on:

Downlink: 435.150 MHz FM (LHCP) and using a

Uplink: 145.880 MHz FM

The power level is just under 1 watt (about 980 mW). Controllers

expect to keep this configuration until further notice.

Keep up with the latest A0-51 Control Team News on-line at:
<http://www.amsat.org/amsat-new/echo/CTNews.php>

The current scenario of A0-51 is one reason we need to keep moving AMSAT and satellite development/building/launching moving forward!! We have learned a lot already with ARISSat-1, and FOX looks promising. AMSAT needs the support of its users now more than ever!

[ANS thanks A0-51 Control Station, Mark Hammond, N8MH for the above information]

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SB SAT @ AMSAT \$ANS-240.02
Time Running Out On The DARA Matching Gift Challenge

AMSAT News Service Bulletin 240.02
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.02

Donate to AMSAT and DARA will contribute matching funds. The Dayton Amateur Radio Association (DARA) fund raising challenge for AMSAT continues until September 1, 2011. DARA will match \$1.00 for every \$3.00 donated up to \$5,000.

Please consider making a donation to AMSAT and have your effort multiplied. We appreciate DARA's support for AMSAT! Your donation will support our "Getting AMSAT Back Into Space" campaign by providing needed funds for AMSAT Project Fox-1 Cubesats which will feature a 2M to 70cm FM transponder matching the performance of A0-51.

You can donate several ways:

- + On-line at the AMSAT Store:
<http://www.amsat-na.com/store/donation.php>
- + You may click on the donation widget on our <http://www.amsat.org> web page.
- + You may call Martha at the AMSAT Office:
From the US call toll free at: (888) 322-6728
From all other locations call: (301) 589-6062
and you can send a fax to: (301) 608-3410
- + You can send donations by postal mail to:
AMSAT-NA
850 Sligo Ave #600
Silver Spring, MD, 20910

[ANS thanks AMSAT Headquarters for the above information]

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SB SAT @ AMSAT \$ANS-240.03
New ARISSat-1 FM Operating Mode

AMSAT News Service Bulletin 240.03

>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.03

ARISSat-1/KEDR Project Manager Gould Smith, WA4SXM reported on this week's status of the satellite. Gould noted that while the battery performed as expected during the first week of operation. Lower voltages during eclipse began to show up in the telemetry on 10 Aug 2011. The voltages during eclipse have continued to decline causing the satellite to reset and occasionally go into Emergency power mode.

Gould explained the changes noted on the 145.950 MHz FM downlink that were heard this week:

- + A Male voice for the spoken telemetry means that the female voice files on the SD card could not be read.
- + If no greetings are transmitted this means that these message stored on the SD card could not be read.
- + A short Mission-Elapsed-Time (minutes to hours) has been noted while the satellite was still in a long period of sunlight indicating that satellite must have reset during sunlight.

Reports received on later orbits indicated that the female voiced telemetry and the greetings messages had returned to normal operation once the solar panels had recharged the battery.

After each reset the satellite MET (Mission Elapsed Timer) goes to 000, waits during the 15 minute TX delay, the power management software checks the current voltage and power values and determines what power mode to operate the satellite. The power mode is re-determined at fixed intervals, especially during illuminated periods to provide the most transmitted signals while protecting the battery.

High power mode provides continuous transmission when sunlight is charging the battery. If the satellite has entered low power mode it will transmit for 40 seconds and remain idle for 2 minutes when in eclipse, or when the battery voltage is low.

The ARISSat-1 team is closely monitoring the situation and is pleased with how well the power management software is controlling the battery usage to prolong the lifetime of the battery and the satellite as much as possible.

Please send your BPSK telemetry into the server arissattlm.org.

[ANS thanks ARISSat-1/KEDR Project Manager Gould Smith, WA4SXM for the above information]

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SB SAT @ AMSAT \$ANS-240.04
Second Call For Papers for the 2011 AMSAT Space Symposium

AMSAT News Service Bulletin 240.04
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.04

This is the second call for papers for the 2011 AMSAT Space Symposium

to be held Friday, November 4th through Sunday, November 6th at the Wyndham San Jose Hotel, San Jose, California.

Proposals for papers, symposium presentations and poster presentations are invited on any topic of interest to the amateur satellite community.

We request a tentative title of your presentation as soon as possible, with final copy submitted by October 1, 2011 for inclusion in the printed proceedings.

Abstracts and papers should be sent to Dan Schultz, N8FGV, at: n8fgv@amsat.org.

[ANS thanks Dan Schultz, N8FGV for the above information]

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SB SAT @ AMSAT \$ANS-240.05
Kentucky Space Consortium Announces CubeSat Workshop

AMSAT News Service Bulletin 240.05
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.05

Kentucky Space, a consortium of Kentucky-based colleges and universities and Make Magazine announced the First annual hackerSPACE Workshop focused on CubeSat class satellites to take place in Lexington, Kentucky, November 11-12.

While learning how to design and build your own fully functional orbital spacecraft, you will work with a team of space professionals and engineers led by Radio Amateur Bob Twiggs, W7RMT. Dr. Twiggs is Emeritus professor and former director of the Space Systems Development Lab at Stanford University, now professor at Morehead State University and also with Kentucky Space. He is credited with inventing both the CubeSat and FemtoSat spacecraft, which are now helping to revolutionize space, putting it within reach of more people than ever.

At this hands-on workshop you will learn about the design and assembly of small satellites, what kinds of systems are common to all spacecrafts, possible satellite 'apps', the kinds of tests your craft will have to pass before it can be flown, raising funds to support your space project and possible launch opportunities.

Further details at: <http://www.kentuckyspace.com/>

[ANS thanks Kentucky Space for the above information]

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SB SAT @ AMSAT \$ANS-240.06
Near-Earth Asteroid Fly-by Receiving Opportunity

AMSAT News Service Bulletin 240.06
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.06

The 400 meter diameter near-Earth asteroid 2005 YU55 will be making a 0.85 lunar distance flyby of Earth on November 8. Michael Busch at the UCLA Department of Earth and Space Sciences notes this may an opportunity for amateur satellite operators to observe the fly-by.

UCLA will be conducting an extensive campaign of radar observations with the Arecibo Observatory, the Deep Space Network Goldstone facility, and the Green Bank Telescope and the Very Long Baseline Array.

Because YU55 will be so close to Earth, its radar echo will be detectable with even small antennas ($\sim 1 \text{ m}^2$). YU55's echo will be a slowly drifting signal with a bandwidth of $\sim 1 \text{ Hz}$ within a few kHz of 2380 MHz or 8560 MHz.

This will present amateur radio operators an opportunity to receive the radar reflections off of the asteroid because of the big dish, big signals originating from Arecibo and Goldstone.

On November 8, 2011, 19:15 - 19:30 UTC, Arecibo will be transmitting a continuous wave tuned to put the asteroid's echo at a constant 2380.000000 MHz at the Green Bank Telescope. Observers elsewhere on Earth will see the echo within 2 kHz of 2380 MHz, Doppler-shifted by the Earth's rotation. It will be slowly drifting in frequency and have a bandwidth of $\sim 0.6 \text{ Hz}$.

On November 9, 2011, 01:30 - 02:00 UTC, the Goldstone Deep Space Network facility will be transmitting a continuous wave tuned to put the asteroid's echo a constant 8560.000000 MHz at a second antenna at the Goldstone site. Other observers may see the echo shifted by as much as 6 kHz, and it will have a bandwidth of $\sim 2 \text{ Hz}$.

Initial information can be found on-line at:
http://echo.jpl.nasa.gov/asteroids/2005YU55/2005YU55_planning.html
More details will be announced as the fly-by date approaches.

[ANS thanks Michael Busch, UCLA Department of Earth and Space Sciences for the above information]

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SB SAT @ AMSAT \$ANS-240.07
UK Students Develop Cosmic Radiation Experiment

AMSAT News Service Bulletin 240.07
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To ALL RADIO AMATEURS
BID: \$ANS-240.07

The Times newspaper reported on an experiment developed by students in Canterbury that will soon fly in space. They have also teamed up with students in Uganda.

Students at the Simon Langton Grammar school, led by Head of Physics, Dr. Becky Parker are developing a Cosmic Radiation experiment (LUCID) that will be part of the TechDemoSat-1 satellite. It is based around a Cosmic Ray detector chip from CERN and the school raised £60,000 to fund the experiment.

The school say that Dr Obote College in Uganda will soon be working with one of the LUCID cosmic ray detectors and Ugandan students will play an equal part with Langton students in collecting and analysing

data on cosmic ray activity as part of an international experiment.

As part of the project Dr. Becky Parker is looking for money to install LUCID equipment in schools across the British Isles and Europe providing ground-based data in a way that will involve hundreds of thousands of students.

TechDemoSat-1 (TDS-1) is developed by Surrey Satellite Technology Ltd (SSTL). The TechDemoSat will function as an in-orbit test facility

for the UK Space Agency once launched, qualifying onboard payloads as well as UK satellite software.

At around one meter cubed and a mass of 150kg, TechDemoSat (TDS-1) will carry no less than eight payloads. Additional features proposed for this mission include:

- + An enhanced on board computer giving greater ability to conduct software experiments remotely.
- + A new battery charge regulator and newly qualified cell types on two of the solar panels.
- + A propulsion system will see a smaller tank size trialled with a new high performance resistojet thruster.
- + New sun sensors in the Altitude and Orbital Control System.
- + Standard CANbus interface.

More details can be found on-line at:
<http://tinyurl.com/3nvp8zn> (sstl.co.uk)

[ANS thanks the Southgate ARC site for the above information]

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SB SAT @ AMSAT \$ANS-240.08
FCC Issues Experimental License For Imaging Tests on 2M & 70cm

AMSAT News Service Bulletin 240.08
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.08

Amateur Radio Newsline Report 1776, dated August 26, 2011, carried a report that the FCC has issued a new experimental license with the call letters WF2XSP to one James Cutler to operate in 144 to 146 MHz and 437 to 439 MHz spectrum. This, for testing an image processing algorithm that will be used on a future space flight mobile, Low Earth Orbit operations ranging from 450 to 820 kilometers in altitude.

The FCC announcement made no other reference to the nature of Cutler's experimentation nor why he requested to do so in the amateur 2 meter and 70 centimeter bands. QRZ.com lists six radio amateurs by the name of James Cutler, but its unknown if any of them are the same James Cutler who has obtained the Experimental License from the FCC.

[ANS thanks Amateur Radio Newsline Report for the above information]

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SB SAT @ AMSAT \$ANS-240.09
Satellite Shorts From All Over

AMSAT News Service Bulletin 240.09
>From AMSAT HQ SILVER SPRING, MD.
August 28, 2011
To All RADIO AMATEURS
BID: \$ANS-240.09

- + Bryce, KB1LQC has posted a video showing reception of the ARISSat-1 amateur radio satellite using a handheld arrow yagi antenna:
<http://tinyurl.com/42fbrqe> (Southgate ARC)
- + Mario Lorenz, DL5ML0 from AMSAT-DL gave a presentation, in English, at the Hacker Space Program track at the Chaos Communication Camp 2011 which ran from August 10-14 at Finowfurt near Berlin, Germany. A video of Mario's presentation, "From OSCAR 1 to Mars and Beyond", can be seen at: <http://tinyurl.com/445w7re>
- + If a tower falls and no one is near does it still make a sound? Find out when you view a video of the demolition of the 126 meter tower at the Beromünster national transmission center. The 216 meter tower at this site remains standing as part of protected monument status.
- + NASA STEREO spacecraft captured a billion-tons cloud of solar plasma from a Coronal Mass Ejection event as it engulfed the Earth:
http://www.nasa.gov/mission_pages/stereo/news/solarstorm-tracking.html
- + We have software defined radios ... are you ready for a software defined antenna tuner (of sorts)? A series capacitor, parallel inductor T-network radio frequency impedance match written in JAVA that runs on a web page can be tuned at:
<http://fermi.la.asu.edu/w9cf/tuner/tuner.html>
- + NPR has posted a video, "The Astronaut's Guide To Life In Space" at:
<http://vimeo.com/27738605>
- + The dates for the next Hudson Valley Satcom nets are September 1, September 15, and September 29 at 8:00 PM Eastern Daylight Time (UTC - 4). You can tune in via the 146.970 MHz Mt. Beacon repeater, PL 100.0 or via EchoLink on the N2EYH-L node. More info is available at: <http://www.hvsatcom.org> (Stu, WA2BSS)

[ANS thanks everyone for the above information]

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In addition to regular membership, AMSAT offers membership in the President's Club. Members of the President's Club, as sustaining donors to AMSAT Project Funds, will be eligible to receive additional benefits. Application forms are available from the AMSAT Office. And with that please keep in mind the two ham radio brothers called William and Wayne. Will was a CW operator and Wayne was a phone operator. Hams noticed they always went around together. If William went to the CW band, Wayne would be in the shack tuning the phone band. One ham noticed they were so inseparable. It was easy to explain, because where there's a Will there's a Wayne!

73,
This week's ANS Editor,
JoAnne Maenpaa, K9JKM